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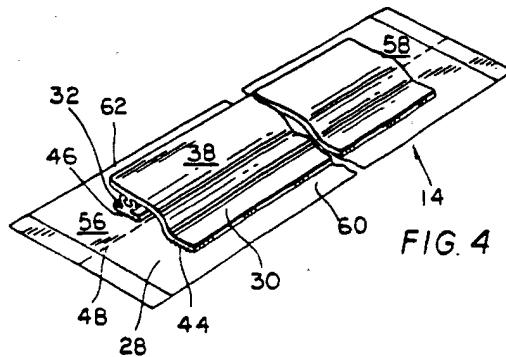
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(54) Reclosable plastic bags and method of making same utilizing discontinuous zipper strip.

(57) A reclosable plastic bag is provided with a zipper assembly having zipper strips mounted on a carrier tape. The carrier tape extends beyond the zipper strips and side seals for the bag extend through the sections of the carrier tape which extend beyond the zippers. A method for producing such bags is also disclosed.



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MINIGRIP INC

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Reclosable plastic for packaging - has pair of interlocking plastic strips bonded to carrier tape with central weakened line (Eng)

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R(AT BE CH DE ES FR GB IT LI NL)

A reclosable package comprises a plastic bag with sidewalls joined at top, bottom and sides, and a closure formed by a pair of coextensive plastic strips (30,32) with complementary interlocking profiles. Each strip is permanently bonded to a carrier tape (28) which extends longitudinally beyond the strips to define end sections.

The bag side seams pref. extend through the end sections, and the strips are spaced on the tape which has a weakened zone (48) between them. The tape is pref. heat-sealed to the bag and the weakened zone is off-centre in the space between the bonding areas of the strips. The closure may be secured to the inner or outer surface of a sidewall and the weakened zone is a line of perforations.

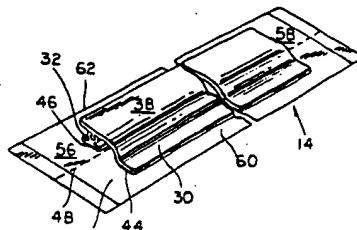
A(11-C1A1, 12-P2, 12-P3)

The method of forming the above package is also claimed.

USE/ADVANTAGE

Partic. for use in a form fill and seal machine, provides a reclosable package with uniform thickness across its entire width.(8pp1358HWDwgNo4/10)

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open;

Fig. 4 is a fragmentary enlarged view of the zipper assembly used in the package of Fig. 1.

Fig. 5 is a fragmentary view similar to Fig. 2 wherein the zipper is disposed on an interior surface of the package wall;

Fig. 6 is a view similar to Fig. 5 depicting an alternative zipper construction embodying a tear strip;

Fig. 7 is a view similar to Fig. 6 after the tear strip is removed;

Fig. 8 is a view similar to Fig. 2 wherein the free edges of the zipper strips are joined together with a tear bead;

Fig. 9 is a simplified perspective view of a form fill and seal machine upon which packages in accordance with the present invention may be produced with the zipper running in the machine direction; and,

Fig. 10 is a simplified top plan view of the section of the machine depicted in Fig. 9 whereon the tear is attached to the zipper strips and bag body.

Detailed description of the Preferred Embodiments

Reference is now made to the drawings and to Fig. 1 in particular wherein a package 10 is depicted comprising a bag body 12 which may be formed in single or multiple layers provided with a sliderless zipper 14. The bag body 12 includes opposed side walls 16, 18 joined at bottom edge 20, top edge 22, and side edges 24, 26. The top and bottom edges are formed by folds in the plastic material from which the bag is made while the side edges are defined by seals extending across the bag from top to bottom.

Referring to Figs 2-4 it can be seen that the zipper 14 is formed of a relatively thin carrier tape 28 to which zipper strips 30, 32 are permanently attached. Each of the zipper strips 30, 32 includes an elongated profile 34, 36 which is coextensive with the strip. The profiles are contoured to enable them to interengage with each other in a well known fashion. A flange 38 is provided on one of the zipper strips 30 to facilitate disengaging the profiles to open the package 10 when closed with the zipper 14. Each of the zipper strips 30, 32 has a margin 40, 42 adjacent to its profile and the zipper strips are bonded to the carrier tape 28 in bonding areas 44, 46 disposed within the margin. To this end the carrier tape and zipper strips may each be formed of a fusible plastic material, such as polyethylene, thereby enabling the zipper strips 30, 32 to be heat sealed to the carrier tape 28. If the zipper strips or carrier tape are not formed of a fusible material they may be bonded to one another using a suitable adhesive having sufficient gripping force to withstand the force needed to disengage the profiles to open the package.

As shown in Fig. 2, the bonding areas 44 and 46

are spaced apart from each other and the carrier tape between the bonding areas is provided with a pre-weakened zone 48 defined by a line of perforations, a partial score line or the like. It may also be noted from Fig. 2 that the preweakened zone 48 is off center between the bonding areas 44, 46 dividing the carrier tape into longitudinal sections 52, 54 with substantially more of the carrier tape material on the side of the preweakened zone 48 adjacent bonding area 44. As a result, when the carrier tape is ruptured along the preweakened zone and the zipper profiles separated, the longitudinal carrier tape section 52 overlies the profile 34 as shown highly exaggerated in Fig. 3. This provides a convenient pour flap through which the contents of the package may be poured after the bag side wall 50 below the zipper assembly is ruptured.

An important feature of the present invention derives from the fact that the carrier tape defines a border extending completely about the zipper strips. That is, the border includes end sections 56, 58 as well as longitudinal side sections 60, 62. The end sections of the border 56, 58 extend to the side edges 24, 26 of the bag body so that the side seams for the final package need only pass through the carrier tape and not though the zipper profiles. Since the thickness of the carrier tape is nominal (in the order of 1-5 mils) as compared with the thickness of the zipper profile (on the order of 60 mils or more) no special pre or post treatment of the zipper assembly at the side seals is necessary. That is, no ultrasonic spot seal, flattening of the carrier tape or the like is required in order to insure a proper seal. This is extremely important where the package 10 is to be formed on form, fill and seal equipment since no major modification of the equipment is required to accommodate the film from which the package is to be formed notwithstanding the fact that it contains a zipper. In addition, the zipper may be discontinuous and extend across only a portion of the package (rather than from side to side or top to bottom) by making the end sections 56, 58 wide enough. This is extremely useful in controlling the flow of powder or granular material from the package. Thus, the size of the zippered opening may be tailored to the product to be packaged.

In Fig. 5 a modification of the package of the present invention is depicted in that the zipper assembly 14 is provided on the inside of the package 64 as distinct from the package 10 depicted in Figs. 1 and 2 wherein the zipper is on the outside. In this case the bag body must be cut in the area 66 overlying the zipper in order to gain access to the zipper 14. It should be noted, however, that whether the zipper assembly is inside or outside the bag the integrity of the package does not rely on the zipper assembly in any way but rather relies only on the bag body. Thus the zipper assembly need not have any particular barrier properties since access to the product within the package is gained only after the initial rupture of

the transverse distance along said carrier tape from one of said zipper strips to said preweakened zone is greater than the distance from the bonding area for said one zipper strip to the profile of said one zipper strip.

8. The package in accordance with claim 2, wherein said zipper assembly is attached to an interior surface of one of said bag body sidewalls.

9. The package in accordance with claim 2, wherein said zipper assembly is attached to an exterior surface of one of said bag sidewalls.

10. The package in accordance with claim 3, wherein said preweakened zone comprises a line of perforations.

11. The package in accordance with claim 5, wherein said zipper strips are joined to one another along a joining edge opposite to said elongated margin.

12. The package in accordance with claim 11, further including a tear bead disposed along said joining edge and fused thereto, said tear bead being formed of a plastic material having different characteristics from the plastic material of said zipper strips.

13. The package in accordance with claim 12, wherein in said zipper assembly is attached to an interior surface of one of said sidewalls and said tear bead is further bonded to said package sidewall.

14. A method of forming reclosable package comprising the steps of:

forming a tube of plastic film material;
feeding a zipper assembly into a position adjacent said tube, said assembly having coextensive first and second zipper strips with complementary profiles thereon discretely spaced along a carrier tape, said carrier tape including blank sections disposed between adjacent sections of zipper strip;

bonding said zipper assembly to said tube;
and,

forming seams in said tube which extend through said zipper assembly only through said carrier tape blank sections.

15. The method in accordance with claim 14, wherein in said zipper assembly is fed to an interior surface of said tube.

16. The method in accordance with claim 13, wherein in said zipper assembly is fed to an exterior surface of said tube.

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17. The method in accordance with claim 15, wherein in said profiles are joined by a tear bead and further comprising the step of joining said tear bead to said tube.

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18. The method in accordance with claim 14, wherein in said tube is formed about a filling spout of a form fill and seal machine.

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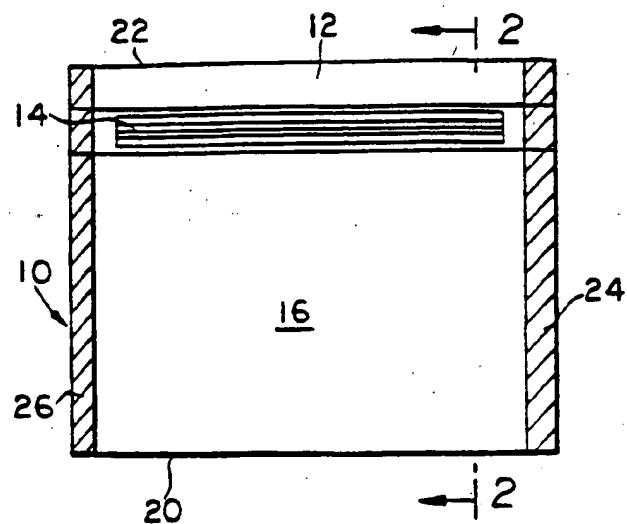


FIG. 1

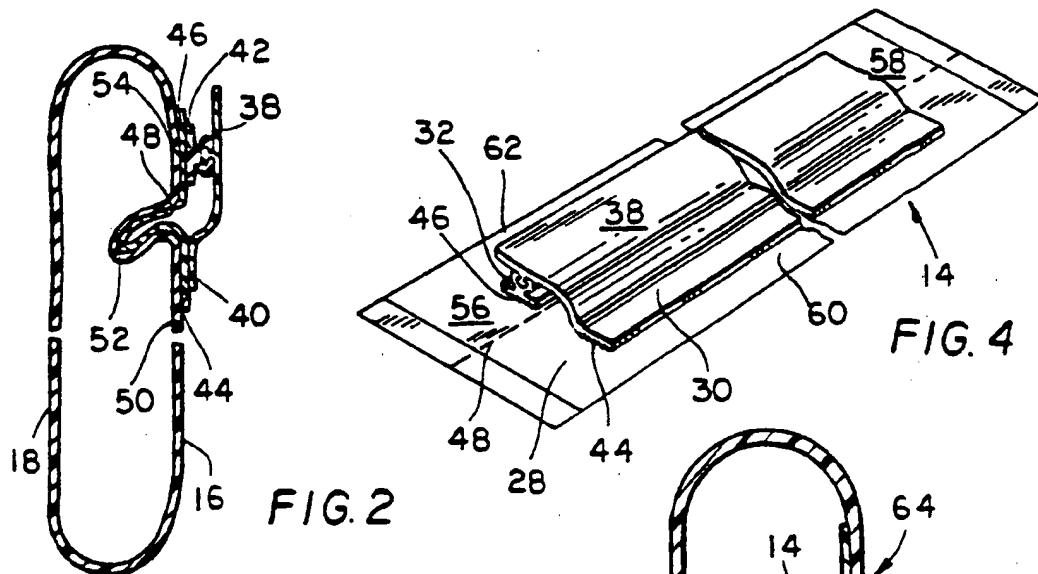


FIG. 2

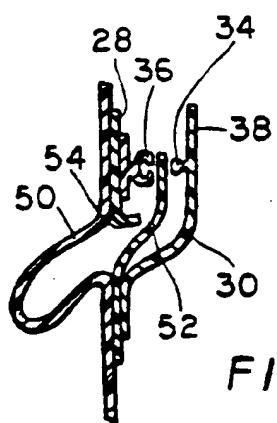


FIG. 3

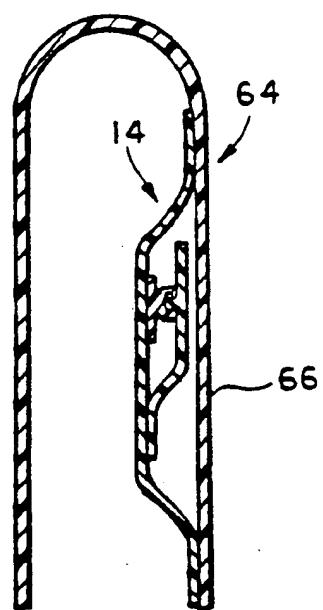


FIG. 5

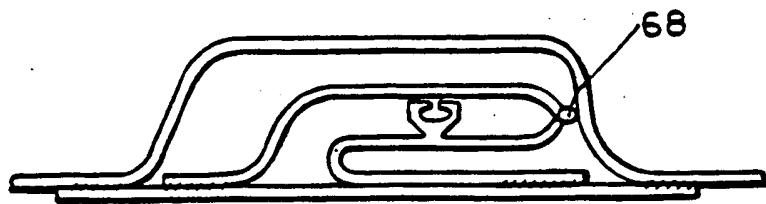


FIG. 6

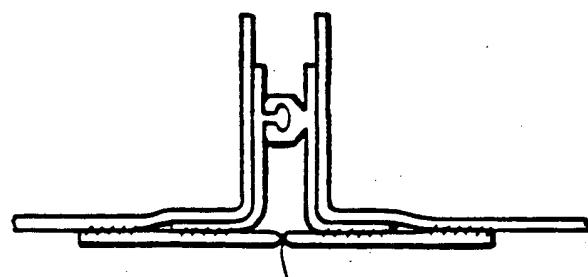


FIG. 7

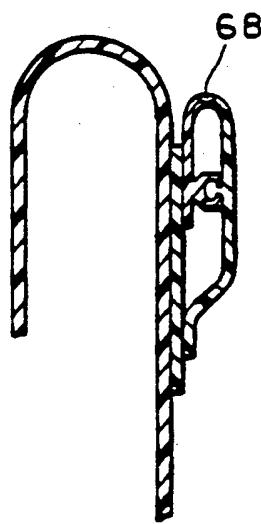
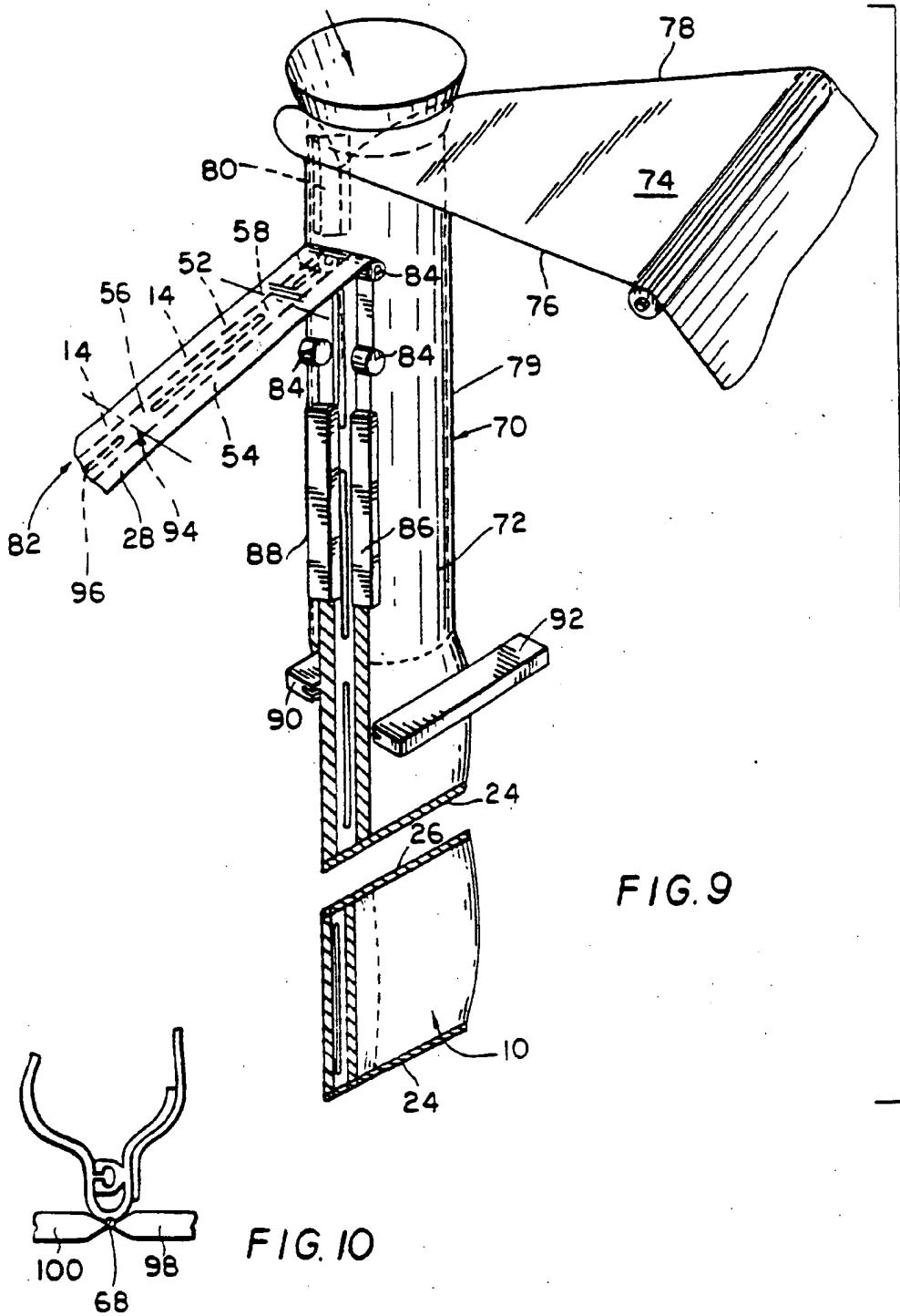


FIG. 8



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